AMENDMENTS TO THE CLAIMS

1-10 (canceled)

11. (previously presented) A method for partially and selectively hydrogenating a polymer made of at least a conjugated diene monomer having a vinyl content, based on the content of polymerized conjugated diene, of from 20 to 65%, wherein the content of 1,4 double bonds is from 35 to 80% (together being 100%), comprising a hydrogenation step on a solution of the polymer, characterized in that the hydrogenation step is performed in the presence of an iron-containing catalyst whereby a hydrogenated polymer is obtained wherein the vinyl content is reduced to 5% or less, whereas the content of 1,4-double bonds is maintained at a level of at least 30%.

12. (previously presented) The method of claim 11 for partially and selectively hydrogenating a polymer made of at least a conjugated diene monomer having a vinyl content of from 30 to 60%, wherein the hydrogenated polymer is obtained wherein the vinyl content is reduced to 3% or less, whereas the content of 1,4-double bonds is maintained at a level of at least 30%.

13. (previously presented) The method of claim 11 wherein the polymer is a block polymer comprising at least a polymer block of a vinyl aromatic monomer and a polymer block of a conjugated diene monomer.

14. (previously presented) The method of claim 11 wherein the solution that is subjected to the hydrogenation step contains amounts of lithium alkoxide and iron-containing catalyst of which the molar ratio [lithium alkoxide]/[iron-containing catalyst] is less than 20.

15. (previously presented) The method of claim 11 wherein the polymer is a substantially completely hydrogen terminated polymer.

16. (previously presented) The method of claim 11 wherein the solution is substantially free from lithium alkoxide.

17. (previously presented) The method of claim 11 wherein the hydrogenation catalyst residue derived from the iron containing catalyst is extracted from the solution of hydrogenated polymer in the absence of an oxidation agent.

18. (previously presented) The method of claim 17 wherein the hydrogenation catalyst residue is extracted in the absence of oxygen.

19. (previously presented) The method of claim 17 wherein the hydrogenation catalyst residue is extracted from the solution of hydrogenated polymer with a solution of an inorganic or organic acid, or a mixture thereof.

20. (previously presented) The method of claim 18 wherein the hydrogenation catalyst residue is extracted from the solution of hydrogenated polymer with a solution of an inorganic or organic acid, or a mixture thereof.

21. (previously presented) The method according to claim 19 wherein the hydrogenation catalyst residue is extracted from the solution of hydrogenated polymer with a solution of an organic acid having 2 to 36 carbon atoms.

22. (previously presented) The method according to claim 20 wherein the hydrogenation catalyst residue is extracted from the solution of hydrogenated polymer with a solution of an organic acid having 2 to 36 carbon atoms.

23. (previously presented) The method of claim 12 wherein the polymer is a block polymer comprising at least a polymer block of a vinyl aromatic monomer and a polymer block of a conjugated diene monomer.

24. (previously presented) The method of claim 23 wherein the solution that is subjected to the hydrogenation step contains amounts of lithium alkoxide and iron-containing catalyst of which the molar ratio [lithium alkoxide]/[iron-containing catalyst] is less than 20.

25. (previously presented) The method of claim 24 wherein the polymer is a substantially completely hydrogen terminated polymer.

26. (previously presented) The method of claim 25 wherein the solution is substantially free from lithium alkoxide.

27. (previously presented) The method of claim 26 wherein the hydrogenation catalyst residue derived from the iron containing catalyst is extracted from the solution of hydrogenated polymer in the absence of an oxidation agent.

28. (previously presented) The method of claim 27 wherein the hydrogenation catalyst residue is extracted in the absence of oxygen.

29. (previously presented) The method of claim 27 wherein the hydrogenation catalyst residue is extracted from the solution of hydrogenated polymer with a solution of an inorganic or organic acid, or a mixture thereof.

30. (previously presented) The method of claim 28 wherein the hydrogenation catalyst residue is extracted from the solution of hydrogenated polymer with a solution of an inorganic or organic acid, or a mixture thereof.

31. (previously presented) The method according to claim 29 wherein the hydrogenation catalyst residue is extracted from the solution of hydrogenated polymer with a solution of an organic acid having 2 to 36 carbon atoms.

32. (previously presented) The method according to claim 30 wherein the hydrogenation catalyst residue is extracted from the solution of hydrogenated polymer with a solution of an organic acid having 2 to 36 carbon atoms.

33. (new) A method for partially and selectively hydrogenating a polymer made of at least a conjugated diene monomer having a vinyl content, based on the content of polymerized conjugated diene, of from 20 to 65%, wherein the content of 1,4 double bonds is from 35 to 80% (together being 100%), comprising a hydrogenation step on a solution of the polymer, characterized in that the hydrogenation step is performed in the presence of an iron-containing catalyst whereby a hydrogenated polymer is obtained wherein the vinyl content is reduced to 5% or less, whereas the content of 1,4-double bonds is maintained at a level of at least 30%, and wherein the solution that is subjected to the hydrogenation step contains amounts of lithium alkoxide and iron-containing catalyst of which the molar ratio [lithium alkoxide]/[iron-containing catalyst] is less than 20.